

**REMARKS**

Favorable reconsideration of this application as presently amended and in light of the following remarks is respectfully requested.

Claims 1-6, 8 and 10 are active in this application. Claims 9 and 11-17 were previously withdrawn from consideration. The present amendment amends Claims 1 and 8 without introducing any new matter or raising new issues; Claims 7 and 18 are cancelled without prejudice or disclaimer.

The outstanding Office Action objected to the title of the invention as not being descriptive. Claims 1-3, 7 and 10 were rejected under 35 U.S.C. §102(b) as anticipated by Ueno (Japanese Patent Publication JP 2001/077358A, herein “Ueno”). Claims 1, 4, 5, 7 and 10 were rejected under 35 U.S.C. §102(b) as anticipated by Takahashi et al (U.S. Patent No. 5,776,812, herein “Takahashi”). Claims 6 and 8 were indicated as being allowable if rewritten in independent form.

Applicants acknowledge with appreciation the indication of allowable subject matter. In response, Claim 8 is rewritten in independent form, by reciting all the features of independent Claim 1 and intervening, dependent Claim 7, and also to recite that “the first and second gate electrodes being isolated from each other.” Consequently, Claim 7 is cancelled.

In response to the objection to the title, the title is amended to recite “Semiconductor Device Having a Vertical MOS Trench Gate Structure,” to delete the manufacturing of the same.

Furthermore, Claim 1 is amended to recite that the first and second electrodes are isolated from each other, to clarify this feature. Support for the amendment to Claim 1 is found in the disclosure of Figures 10-11 and the corresponding discussion at page 15, lines 12-27. No new matter has been added. It is believed that this feature had already been

considered by the Examiner in the examination of the previous amendment. Therefore, Applicants respectfully submit that this change is not believed to raise any new issues.

In light of the amendments to independent Claim 1, Applicants respectfully traverse the rejection of Claims 1-3, 7 and 10 under 35 U.S.C. §102(b), and request reconsideration thereof, as next discussed.

Briefly recapitulating, Claim 1 relates to a semiconductor device, including, *inter alia*, first and second gate electrodes formed on a gate insulating film and opposed to a facing side surfaces of a trench. In addition, the first and second gate electrodes are *isolated* from each other.

Turning now to the applied references, Ueno describes a UMOS semiconductor device, wherein a trench 24 is made in the surface of an n+ source region 23.<sup>1</sup> Then, a n-doped sidewall region 20b is formed on side surfaces of Ueno's trench 24. A n-doped bottom portion region 20a is formed in a bottom portion of the trench 24. The region 20a reaches a drift layer 21b located underneath the region 20a. Subsequently, a gate electrode layer 26 formed of polycrystalline silicon is embedded in Ueno's trench 24, via a gate insulating film 25.

However, Ueno fails to teach or suggest that the first and second gate electrodes are isolated from each other, as recited in Applicants' Claim 1. In Ueno, only one single U-shaped gate electrode layer 26 is formed.<sup>2</sup> Accordingly, Ueno fails to teach or suggest first and second gate electrodes that are isolated from each other. Ueno's gate electrode layer 26 is a single part, and there is no isolation of parts of the gate electrode layer 26. Accordingly, a U-shaped electrode, as taught by Ueno, *is not* a first and second gate electrode, isolated from each other. Therefore, Applicants respectfully traverse the rejection of independent

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<sup>1</sup> See Ueno in Figures 1-3.

<sup>2</sup> See Ueno in Figures 1 and 4.

Claim 1, and request reconsideration of the rejection. Claims 2, 3 and 10 depend from Claim 1, and therefore are also believed to be patentably distinct over Ueno.

The reference Takahashi, relied upon by the outstanding Office Action to form another 35 U.S.C. §102(b) rejection, does not remedy the deficiencies of Ueno. Takahashi describes a semiconductor device, wherein a U-groove 50 is formed on a main surface of a wafer 21.<sup>3</sup> A gate oxide film 8 is formed on an inner wall of the U-groove 50. Subsequently, a gate electrode 9 is formed on the gate oxide film 8. However, Takahashi also fails to teach or suggest that the first and second gate electrodes are *isolated* from each other, as recited in Claim 1.

Therefore, even if the combination of Ueno and Takahashi is assumed to be proper, the combination fails to teach every element of the claimed invention. Specifically, the combination fails to teach the claimed first and second gate electrodes isolated from each other. Accordingly, Applicants respectfully traverse, and request reconsideration of, this rejection based on these patents.<sup>4</sup>

The present amendment is submitted in accordance with the provisions of 37 C.F.R. §1.116, which after Final Rejection permits entry of amendments placing the claims in better form for consideration on appeal. As the present amendment is believed to overcome outstanding rejections under 35 U.S.C. §102(b), the present amendment places the application in better form for consideration on appeal. In addition, the present amendment is not believed to raise new issues because the change to Claim 1 has been previously considered by the Examiner, and Claim 8 is rewritten in independent form. It is therefore respectfully requested that 37 C.F.R. §1.116 be liberally construed, and that the present amendment be entered.

<sup>3</sup> See Takahashi in Figures 1(a) and 1(b).

<sup>4</sup> See MPEP 2142 stating, as one of the three "basic criteria [that] must be met" in order to establish a *prima facie* case of obviousness, that "the prior art reference (or references when combined) must teach or suggest all the claim limitations," (emphasis added). See also MPEP 2143.03: "All words in a claim must be considered in judging the patentability of that claim against the prior art."

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal Allowance. A Notice of Allowance for Claims 1-6, 8 and 10 is earnestly solicited.

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact Applicants' undersigned representative at the below listed telephone number.

Respectfully submitted,

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